

Chapter 8

Kitty Hawk Air Freight Merger – Destruction of a Company Caused from a Flawed Merger

The case study described in this chapter addresses corporate finance issues and involves valuation of debt and equity in the context of a merger. As with other cases, this story is old, the result is known and a seemingly promising business activity did not turn out well. The discussion here is about a freight airline company named Kitty Hawk Airlines which was at one time touted by Wall Street and was able to raise hundreds of millions of dollars in debt and equity. Issues for Kitty Hawk include valuation for an initial public offering of \$30 million, assessment of the purchase price and debt structure in a merger and a lot of discussion about appropriate credit analysis in the context of corporate finance and financial modelling. Wall Street analysts and bankers who received almost \$17 million in fees (more than 3.6 times the Kitty Hawk 1996 net income) were wrong about the company. With some financial magic created from the IPO and a lot of debt, Kitty Hawk was able to buy a larger company named Kalitta for more than \$500 million. The acquisition resulted in default of about \$385 million of debt a little more than two years from the transaction date. Debt issued in the merger was restructured two years later and the company continued to operate. But in another five years, the new smaller Kitty Hawk declared defaulted for a second time and this time it did not survive.

The general subject described in this case involves how financial ratios and forecasts from a financial model can be misinterpreted and used in inappropriate simplistic ways that does not reflect the underlying value and the risks of a corporation. As with the Constellation case discussed in Chapter 6 and the First Solar case that was the subject of Chapter 4, the availability of historical information that seems to be such a big advantage for corporations relative to project financing turned out to be useless if not misleading. A big lesson from the case of Kitty Hawk is the danger of using simple revenue growth and operating margin data and/or relying on management guidance when using a financial model to evaluate a corporation. The demise of Kitty Hawk also demonstrates the importance of understanding implicit assumptions and logic underlying valuation multiples and credit ratios as benchmarks. In terms of credit analysis, Kitty Hawk's story shows the difficulty of applying classic ratios such as debt to

EBITDA and debt to capital, creating financial models from historic information and relying on the reputation of management. Valuation errors and poor credit analysis ultimately led to a lot of pilots and other people losing jobs; inefficient investment in aircraft; funneling money to owners of Kalitta who were on the verge of bankruptcy; and, bankers not getting their debt repaid. Some of the analytical errors included:

- Failure to begin corporate analysis with effective economic evaluation of industry risks related to key drivers of price volatility, demand growth and surplus capacity.
- The uselessness of making forecasts that either rely on company management or that project trends using simple sales growth and gross margin analysis without directly considering capital expenditures required to achieve growth and marginal cost principles.
- Assessing valuation and the merger with multiples from comparative samples that are biased and do not reflect the underlying fundamentals of the company in question.
- Flaws in applying standard financial ratio benchmarks typically used in credit analysis (debt to EBITDA, debt to capital, and interest coverage) to assess the ability of a company to repay its debt instead of carefully evaluating a reasonable downside case.
- Understanding that management discussion and numbers in financial reports often do not include what you really need for making a forecast including potential maintenance capital expenditures.

Information for the case analysis includes SEC reports, annual reports, stock analyst reports and a few blogs by former pilots.¹

Synopsis of the Case

Kitty Hawk was founded in 1989 by Thomas Christopher and its home office was in Dallas Texas. For Kitty Hawk, the airfreight business primarily involved converting planes that had previously been used in passenger service into freight aircraft (the cost of conversion was generally more than the cost of purchasing the planes in passenger configuration). Air freight is used rather than other transport modes when items have to be moved quickly and ship, rail or truck freight would be too slow. Industries that frequently used air freight included automotive, chemical, computer, retail merchandising, and mail. Much of the

¹ These reports can be downloaded from the website www.edbodmer.com.

freight carried by Kitty Hawk was large, heavyweight and/or oversized that could not be carried in passenger aircraft (including live animals and hazardous materials). The company also carried small package freight and other freight that cannot be transported readily in other freight systems. In addition to moving freight, Kitty Hawk had what it called an air logistics operation that was loosely defined in the financial reports. Air logistics seemed to be a very profitable business and only after that bankruptcy did the company report that in fact this segment of the company involved managing the freight needs of GM (demonstrating the danger of relying on information reported by management). The problem with this air logistics segment of the business is that it could not be grown by simply adding planes to the portfolio.²

In September 1996 Kitty Hawk completed an initial public offering that yielded the company \$29.3 million in cash through selling shares at a price of \$12 (netting the company \$10.85 per share after fees and bonuses). With cash from the IPO, Kitty Hawk purchased four 727 aircrafts with a total cost including freight conversion of \$24.7 million³ (or about \$ 6.2 million per plane). This allowed the company to grow its air freight business (four 727s grew the company's capacity by about 35%). At the time of the share issuance the company earned 42% of its gross profit from logistics and 58% of its gross profit from moving air freight (air freight revenues were only \$7 million in 1992 and grew to \$53 million in 1996).

Kitty Hawk's shares were volatile in the year after the IPO, trading between \$8 and \$15. Using estimates made by Kitty Hawk management of 45% earnings growth over the subsequent two years, stock analysts strongly recommended purchase of the shares. Three analysts following the company made similar earnings forecasts that clearly used guidance from Kitty Hawk's management. The forecasts are displayed on Table 8.1 (the similarity of the figures confirms that the analysts applied management earnings estimates.) Because of the earnings per share guidance made by management, Kitty Hawk's stock was considered a strong buy by all of three of the analysts. For example one of the stock analysts, Scott Stringfellow stated: ***“As a result of excellent prospects for growth, we strongly recommend these shares for purchase at this time. Kitty Hawk shares are trading at ... 10.3x of our 1998 estimate of \$1.45. We believe these shares can trade to at least 13.5-14x earning based on our secular growth rate estimate of***

² In describing its air logistics business, Kitty Hawk made statements about owning laptops and CD Rom's that seem comical today: "By increasing speed and reliability of communications through the use of these laptop computers, the Company believes it can reduce telecommunications and labor costs... Kitty Hawk intends to provide its maintenance and flight crews with on-line access to the latest operating and maintenance manuals stored on CD-ROMs. Kitty Hawk SEC 10-k for 1996.

³ Kitty Hawk stated that its strategy was to "continue its rapid growth" and that equity capital was needed to acquire additional Boeing 727-200 aircraft "primarily for its ACMI contract business to meet expected growth in air freight transportation demand in both the North American and Pacific Rim markets." In addition the company stated that it would pursue "the acquisition of domestic and international strategic suppliers of on-demand air and related ground transportation services."

15%. Using an earnings multiple of 14x our 1998 estimate, we believe these shares can trade to at least \$20 over the next 12-18 months.”

	1996	1997	1998
Smith Barney	0.98	1.19	1.45
Alex Brown	0.98	1.20	1.45
Scott Stringfellow	0.98	1.15	1.45

Table 8.1 – Earnings Projections of Analysts following Kitty Hawk

Stock analysts following the company and participating in the IPO praised the company’s innovation and efficiency while accepting management’s earnings guidance. They supported their outlook by a Boeing Report that projected a high rate of demand growth in the airfreight industry along with a good availability of planes coming off passenger service that could be re-configured. Kitty Hawk met its earnings guidance after the IPO and its stock price did rise. A year after the IPO, in the fourth quarter of 1997, the stock price ranged between \$16 and \$24 as shown in Figure 8.1. The increase in stock price relative to the IPO price of \$12 was driven in large part by short-term expectations of high earnings growth.

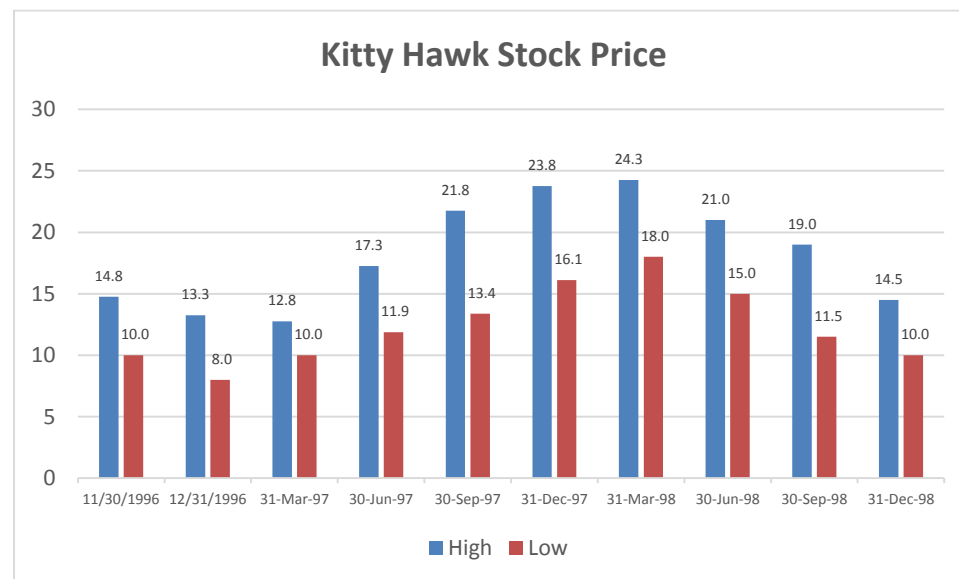


Figure 8.1 – Kitty Hawk Stock Price Increases from the IPO to 1998

About a year on after the IPO, in November 1997, Kitty Hawk acquired another air freight company named Kalitta that was on the verge of bankruptcy and was a lot larger than Kitty Hawk itself. To provide an idea of just how much

bigger Kalitta was than Kitty Hawk, capacity of the company before and after the merger is shown in Figure 8.2. The target company, Kalitta was having financial difficulties. But instead of waiting for Kalitta to potentially declare bankruptcy, Kitty Hawk paid a price substantially above the book value of debt and equity for the company. Kalitta had borrowed \$255 million to purchase additional planes but was having trouble with the conversion to freight that would allow to planes to generate revenue. To make Kalitta's financial problems worse, it had signed a contract to buy two 747's from Middle East Airlines that cost \$56 million and it had no way to pay for them (recall that the cost of a 727 was about 6.2 million). Kalitta had grown its assets by about 3.5 times in the past five years and since it was a private company it did not issue any equity to buy its planes.

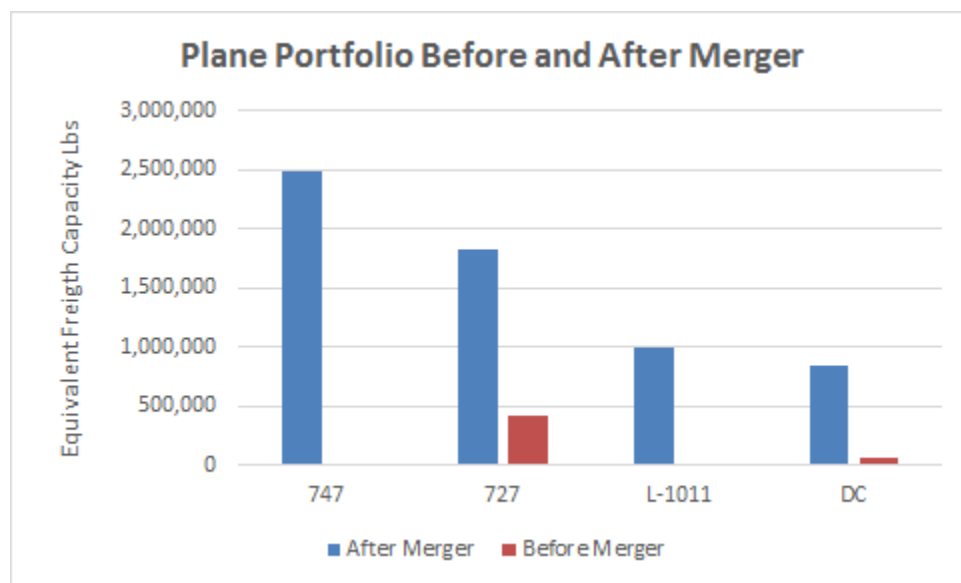


Figure 8.2 – Size of Kitty Hawk and Kalitta in Freight Capacity

For Kitty Hawk to buy Kalitta posed complex structuring from a financial perspective and resulted in a number of seemingly creative features that would surely be commended on Wall Street. If Kitty Hawk issued shares directly to Kalitta for the purchase that would subsequently become listed, there would be so many shares owned by Kalitta that Kalitta would have controlled the company rather than the management of Kitty Hawk. Similarly, Kitty Hawk could not finance the entire transaction with a new public share offering because there would be so many new shares issued that earnings would be highly diluted. This left with Kitty Hawk the option of using a lot of debt to finance much of the transaction. The debt financed repayment of Kalitta debt, separate purchase of planes and a cash payment to Kalitta.

The merger was ultimately financed with a complex mixture of a lot of debt, issuance of new shares and exchanging shares with the previous owner. As with project finance transactions discussed in earlier chapters, it is useful to begin evaluation of the merger with a sources and uses of funds analysis. In the case of a merger, the sources and uses analysis can also be used to evaluate the purchase price and the debt financing of the transaction. The sources and uses of funds statement for the transaction is shown in Table 8.2. In Figure 8.2, the transfer of shares is included as both a use of funds and a source of funds. Note that depending on the assumed valuation of the new shares, equity can be created seemingly out of nothing. (Working through the sources and uses analysis is described in a video on the website www.edbodmer.com in the merger model.)

The sources and uses statement shown on Table 8.2 includes various financial ratios such as the EV/EBITDA and Debt to EBITDA. Computation of these ratios requires calculation of normalized or pro-forma EBITDA along with data from the sources and uses analysis. For Kalitta, normalization of EBITDA was a difficult issue as the company claimed that it had experienced exceptionally high maintenance costs and flight expenses that would not continue in the future, meaning the on-going EBITDA would be higher. Using normalized EBITDA in a base case scenario, the transaction ratios resulted in a debt to capital ratio of 67%, a Debt to EBITDA ratio of 3.3x and an EBITDA interest coverage of more than 3x. These ratios seemed to suggest that the loan was reasonable. With a debt to capital ratio of 67%, the asset value could decline by 33% and still pay off the debt. The Debt to EBITDA ratio seemed to imply that if capital expenditures were stopped, all of the maturities could be paid off in a few years. The interest coverage appeared to suggest that the company could withstand a large decline in income before interest payments could not be paid out of cash flow. Despite these seemingly reasonable statistics, within less than two and a half years, the new merged company's cash flow declined and it could not repay its debt.

Uses and Sources		Valuation Multiples for Transaction	
Uses of Funds		Kalitta EBITDA	87,588.50
Consideration - Cash	20,000	Kalitta EV	459,015.71
Consideration - Shares	77,881	EV/EBITDA	5.24
Consideration - Asset Purchase	51,000	Total Invested Capital	280,279
Transaction Fees	16,895	EV/Invested Capital	1.64
Debt Retired	290,240	Total Consideration	148,881
Fees for Debt Retirement	3,000	Common Equity	35,650
Cash to Reserve for New 747's	56,000	Price to Book	4.18
Additional Cash	-		
Total Uses of Funds	515,016		
Sources of Funds		Solvency Ratios for Credit Analysis	
New Notes Issued	340,000	Kalitta EBITDA	87,588
New Term Loan	45,900	Kitty Hawk EBITDA	29,386
New Shares Issued to Public	41,800	Total EBITDA	116,975
New Shares Issued to Kalitta	77,881		
Cash Used	9,435	Total Debt	385,900
Total Sources of Funds	515,016	Debt/EBITDA	3.30
Net Working Capital		Total Capital	574,395
Total Consideration	148,881	Debt to Capital	67.18%

Table 8.2 – Sources and Uses of Funds in Kitty Hawk/Kalitta Merger

Kitty Hawk's strategy seemed to be that the alternative of purchasing a private company with financial problems was better than the alternative of growing through buying aircraft on the market and then re-configuring them for freight service. The bottom line of the strategy was that the company could grow dramatically and at the same time spend relatively little for planes. In terms of plant investment per pound of capacity, the investment in Kalitta was far less than Kitty Hawk would have to pay on the market.

The enterprise value to EBITDA for the merger was about 5.24 as shown on Table 8.2 (by comparison the EV to EBITDA was 7.5x for Kitty Hawk with a stock price of 18). From a cash flow perspective, the general idea of the merger was that Kalitta's negative financial performance could be improved through better management by Mr. Christopher and Kitty Hawk. According to the merger prospectus, three of the factors that led to the bad performance of Kalitta included: (1) the incurrence of abnormally high engine overhaul expenses due to Federal Aviation Administration Airworthiness Directives; (2) the loss of revenue resulting from the effective grounding of two Boeing 747s; (3) lower revenues from the U.S. Military after the [first] Gulf war was finished. In its financial filings, Kitty Hawk stated that it *"...believes the Kalitta Companies' recent financial performance can be substantially improved ..."*

A central and general question in this case ultimately boils down to: (1) whether the management of a small company (Kitty Hawk) was so good that it could fix the problems with Kalitta that had a different portfolio of planes; and/or (2) whether the difficulties with Kalitta were simply a matter of timing as 747s got off the ground and the entire fleet was utilized. The alternative scenario was that

Kalitta's problems were related to the type of aircraft in its portfolio and could not be influenced much by new management. In this scenario, the financial performance of Kalitta would essentially continue in terms of payments for maintenance of aircraft and continued grounding of some large planes. For reference, the 747s owned by Kalitta used as freight aircraft cost about \$35 million per plane while the value of a 727 freight airline was somewhere between \$6 million and \$8 million.

From reading the annual reports of Kitty Hawk, two years after the merger, the acquisition strategy seemed to be working reasonably well. For the year 1999 Kitty Hawk's, net income increased 41% to \$23.5 million (\$1.38 per share), revenues increased 4% and operating income increased by 7%. At the end of 1999, Thomas Christopher stated optimistically that: *"We positioned the company for continued growth and success while posting year-over-year increases in both revenues and net income despite higher than expected fuel costs."* He also noted that synergies generated from the merger seemed to be materializing: *"We continued to rationalize our businesses ... striving to further sharpen our focus on the core business of cargo transportation... we were awarded a major six-year U.S. Postal Service contract, and our Kitty Hawk International pilots ratified a four-year employment contract with the Teamsters."*

The positive comments made by the CEO of Kitty Hawk conflicted with not so positive description of the merger can be found in blogs written by pilots. According to one pilot, *"When I started [at Kitty Hawk, the company was] profitable ... Everyone was happy even though the pay sucked and they worked you to death ... And you didn't mind this because they treated you well.... It was a big family. And then they bought Kalitta... That moment I knew KHA was doomed. Then things began to change. The profit sharing checks went away. The attitudes changed. Management became hostile. There were fears and concerns about a merger of the pilot groups. KHA started losing money."* A second pilot discussed what happened in March 1999. *"On St. Pat's Day the first round of terminations hit... I believe this incident was the catalyst for the forming of a union at Kitty Hawk along with the perception there would be a merger with AIA. Kitty Hawk pilots got a union contract and merged with ALPA."* A third pilot stated: Kitty Hawk *"foundered on the ill-advised acquisition... finally staggering into bankruptcy in 2000."*

The pilots and not management turned out to be correct. In April 2000 Kitty Hawk declared bankruptcy. To understand the bankruptcy of Kitty Hawk and associated credit analysis, you can evaluate three numbers. The first is operating cash flow as represented by EBITDA; the second is the debt service that must be paid from the EBITDA which was about \$51 million; and the third is capital expenditures to maintain planes which, in the debt agreement, was allowed to range from \$65 million and \$160 million. Unless the pro forma EBITDA in the year of the merger increased substantially, there would not be enough money to

pay both the debt service and maintenance capital expenditures. Figure 8.3 demonstrates that the EBITDA did not increase and there was not enough to pay for more than about \$60 million in capital expenditure along with the \$50 million in debt service. Something was wrong with interpreting the Debt to EBITDA, debt to capital and the interest coverage ratio.

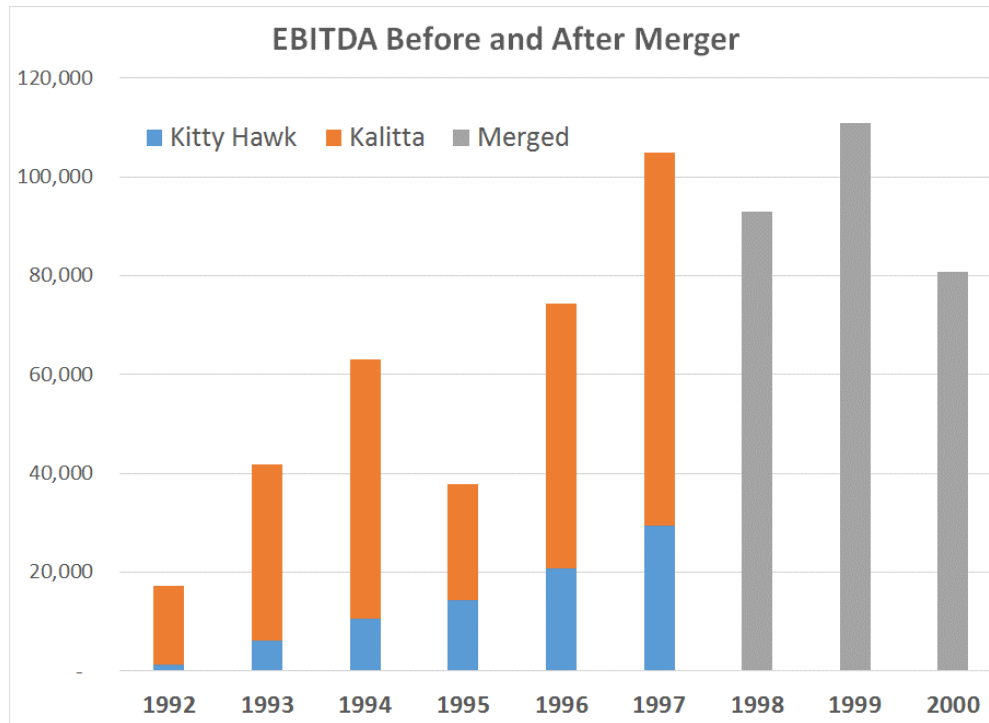


Figure 8.3 – EBITDA Before and After Merger

Kitty Hawk was re-structured and it ultimately emerged from bankruptcy in September of 2002. The new company was a very different company from the company that was created by the Kalitta merger. In 1999, the company earned \$731.3 million of revenue and had more than 2,800 employees with over 100 aircraft. After the bankruptcy, Kitty Hawk only earned \$121.8 million in revenue, with about 700 employees and less than 20 aircraft. It now operated only in the U.S. and Canada. Events between 1999 and 2002 included: (1) termination of wide-Body operations (April 2000); (2) termination of General Motors Contract (May 2000); (3) termination of U.S. Postal Service Contract (January 2001); (3) sale of air logistics and small aircraft (December 2001); and, (4) expiration of ACMI Contract with BAX Global.

Kitty Hawk's bankruptcy and the loss in contracts was in part due to the recession of 2000-2001 that had major impacts on both passenger and freight aircraft markets. According to a Kitty Hawk pilot: "... we lost a third of our work

when BAX...was terminated. Another third of our flying went away with the disastrous cancellation of all US Postal flying contracts...” Even though the new restructured company had little debt and focused only on 727 and 737 planes, it could not generate a positive EBITDA. The company was shut down in 2007 and the last 727 was flown in January, 2008. Figure 8.4 shows a timeline of events for the company from the beginning to the end and Figure 8.5 illustrates the return on invested capital generated by the company.

January, 1989	September, 1996	November, 1997	April, 2000	May, 2000	May, 2000	January, 2001	September, 2002	January, 2004	June, 2006	October 1, 2007
Company Created	Kitty Hawk IPO	Merger with Kalitta	Ceased Wide Body Operations Fired 914	File for Bankruptcy First Time	GM ends contract which was 72% of logistics operations	US Post Office Selects Alternative Provider	Emerges from Bankruptcy 12 727 200's	Agreement for Leasing 737's	Purchased ACT Corporation	Declared Bankruptcy Second Time
			Sold Operations to new Kalitta							

Figure 8.4 – Timeline of Kitty Hawk Case

The graph shown on Figure 8.5 demonstrates in dramatic fashion that the assumption of Kitty Hawk being able to maintain high returns was dead wrong. The remainder of this chapter addresses why financial analysts who valued the company and who evaluated its credit did such a bad job.

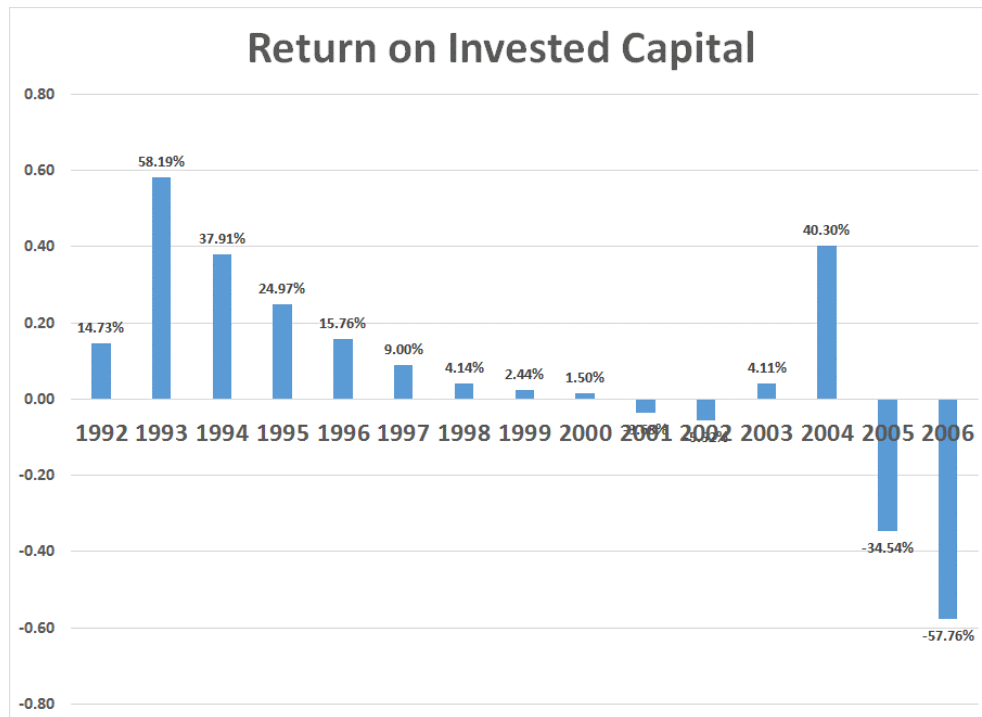


Figure 8.5 – Return on Invested Capital for Kitty Hawk over its lifespan

Valuation and Credit Analysis Flaws Made by Financial Analysts in the Kitty Hawk Case

Valuation Issue 1 – Failure to Analyze Relevant Data for Evaluation of Industry Risks

To analyze the financial condition of a corporation, you should begin by defining the industry and then evaluate industry prospects in terms of demand growth, capacity, change in the value of assets and prices. The current and prospective structure of the industry as reflected in demand volatility, capital intensity and cost structure to a large part defines returns and risks of any corporation operating in the industry. Unfortunately, trends from historic financial statements (for example, revenues per flight hour) can be of little use or even misleading in evaluating these factors, especially after a long economic expansion as was the case for Kitty Hawk. Further, simplistic checklists that may include words like cyclical, technological challenges, industry pricing dynamics, management, stage in product lifecycle, cost strategy or product weakness are all but useless except when you are looking at things after the fact.

One potential way to assess the outlook for an industry is to recast a corporation and an industry using economic principles of short-run and long-run marginal cost. The idea is to gauge potential price changes that can come from demand volatility, surplus or tight capacity, costs of new additions and the relationship between fixed and variable expenses. For capital intensive industries with volatile demand, price can quickly move from above long-run marginal cost all the way down to short-run marginal cost.

When making their assessment of Kitty Hawk's value at the time of the IPO, stock analysts and company management did not make any independent assessment of the industry. Instead, they pointed to a report from Boeing Corporation that projected increased demand for air freight. For example, Scott Stringfellow mentioned that *"According to Boeing ..., worldwide air freight is expected to average 6.7% annually over the next 20 years. The report stated that the world air cargo market grew at an average rate of more than 8% per year from 1970 to 1995 as measured in revenue ton kilometers, more than 2.5 times the growth rate of world gross domestic product."*⁴ The Boeing report was in fact completely wrong. Actual demand for air freight has been reported in national income statistics that are available from the St. Louis Federal Reserve since the year 2000 (see www.edbodmer.com for how to use the data). Figure 8.5 shows that demand as measured by average ton miles in the U.S. has been static over the past 15 years. The graph demonstrates the danger in placing trust in forecasts made by entities such as Boeing that have a vested interest. With the much lower static demand, excess capacity can quickly arise causing prices and returns to plummet.

⁴ Scott Stringfellow Analyst report, included on the website www.edbodmer.com under the case study section.

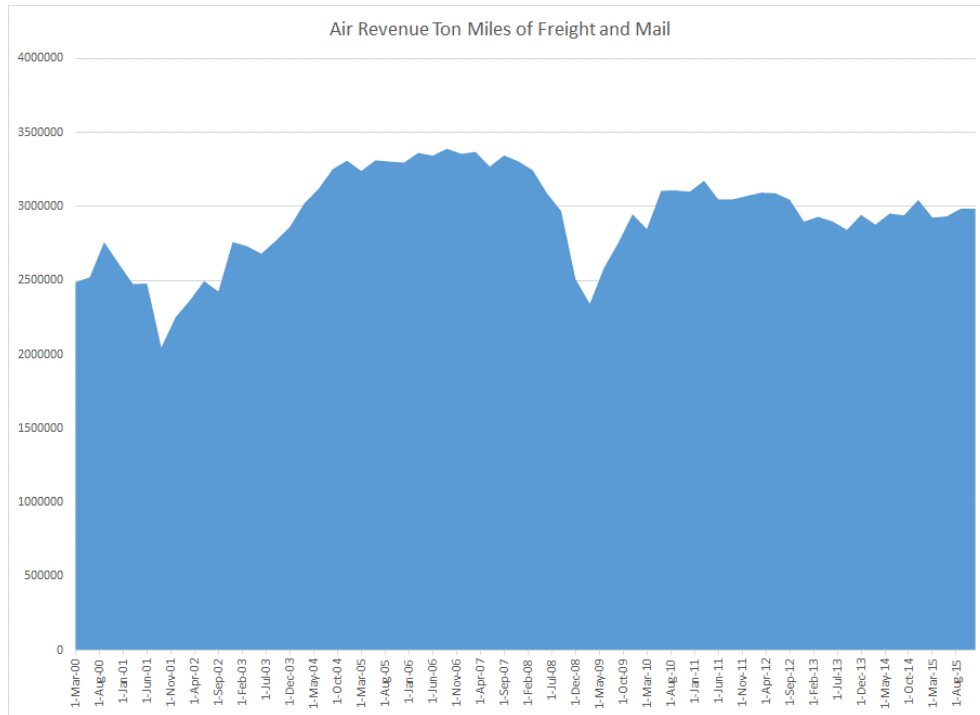


Figure 8.5 – Demand for Airfreight Services

When recommending Kitty Hawk’s stock, analysts believed that a strength of the company was the supply of planes coming off of passenger service. Scott Stringfellow stated that “According to Boeing, available 727s will approach 500 units over the next 15 years.... 727 is the world’s most popular aircraft and has been abundantly been produced.” The prospective increases in aircraft supply increases was not at all a positive. Instead increased supply implied that the value of existing investments crashed and that prices for airfreight fell. After the decline in airline traffic that came along with the attacks of 11 September 2001, the supply increased and the value of a 727 fell in half.⁵ At the time of the merger between Kitty Hawk and Kalitta in 1997, a 727 configured as a freighter was valued between \$6 and \$9 million. By 2005, Kitty Hawk sold three 727’s that had already been configured for airfreight service for a total of \$3.5 million.

Instead of using historic financial statements, the wholesale price index for air freight services can be evaluated. The price of air freight services before and after adjustments for fuel prices is shown in Figure 8.6 which is provided in the St. Louis Federal reserve database. The top line on this graph representing the nominal price per ton seems to suggest that there is not much volatility in the price of air freight. But when the series is adjusted for fuel prices so the net margin is demonstrated, the story is different. To compute the next margin, an assumption

⁵ See for example, 10/30/2001 - Updated 12:04 PM ET, Aircraft storage business takes off as travel falters, Chris Woodyard, USA TODAY.

must be made as to how much fuel constitutes relative to the price. In Figure this number is 15% at the starting point as show by the beginning index is 1.0 for the nominal price and .85 for the price net of fuel cost. After adjusting for nominal fuel prices and the rate of inflation, the real price of freight services is volatile. More important, the real adjusted margin continued to fall over the 1990's and the 2000's.

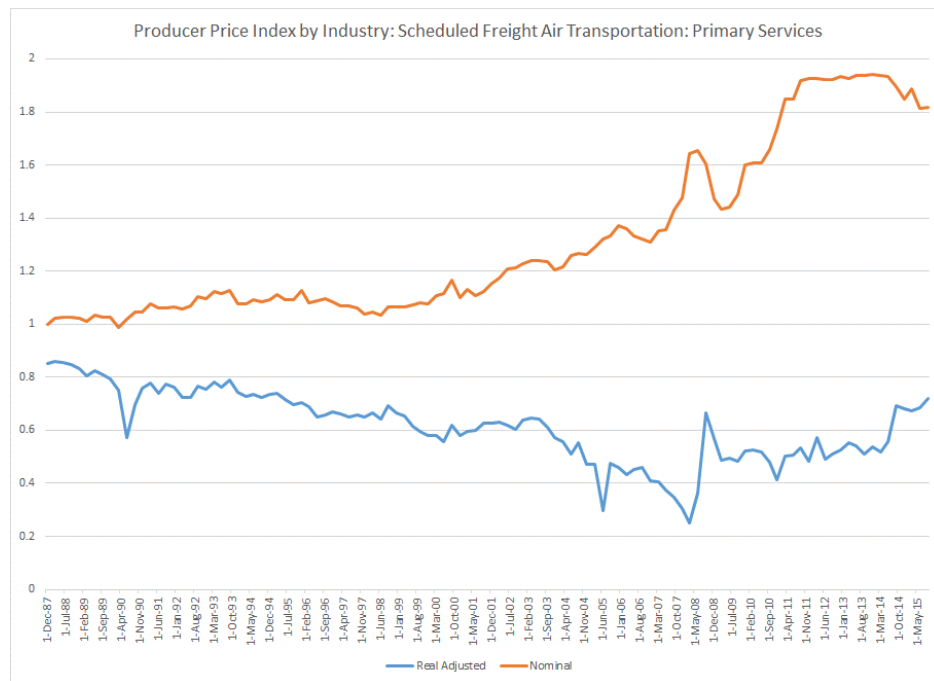


Figure 8.6 – Demand for Airfreight Services

The prices net of fuel shown in Figure 8.6 show that declining and volatile margins which fell by a factor of two were crucial issues in the industry and should have been evaluated in detail. The manner in which both stock analysts and bankers seemingly ignored the industry fundamentals and relied on a Boeing report underlies the subsequent valuation errors discussed and can be termed wishful expectations. The airfreight industry was very competitive, capital intensive and subject to volatile fuel prices. From a business risk perspective the potential price volatility and reductions in real price were the most important drivers of value and had little to do with management earnings forecasts. With hindsight, assumptions that operating earnings for the company would be stable were very dangerous. Figure 8.7 displays that the EBITDA per flight hour for Kitty Hawk over its lifetime. Although changes in EBITDA per flight hour were in part driven by different sizes of the aircraft portfolio, comparison of the EBITDA per plane before 1998 with the same statistic after 2000 demonstrates the volatility of prices and margins in the industry. Before 1997, the EBITDA per flight hour

was near \$1 per hour. After 2000, the same statistic was much more volatile and below \$0.5 per hour.

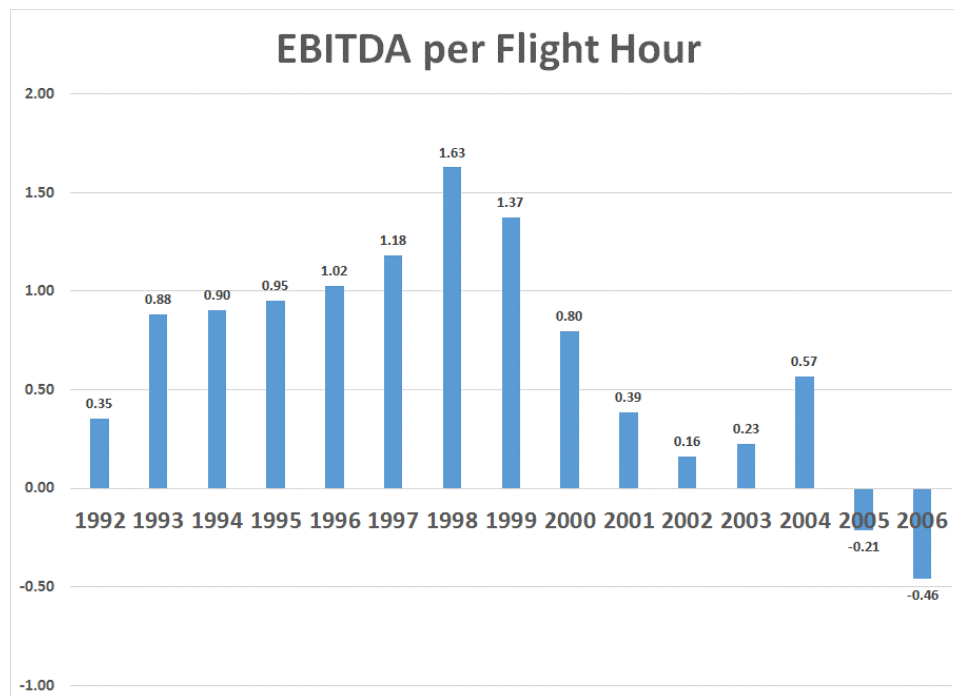


Figure 8.7 – Kitty Hawk EBITDA/flight Hour

Valuation Issue 2 – Use of Revenue Growth and Gross Margin Data to Evaluate Risks Rather than Assessing Value by Measuring Marginal Cost

In analyzing the value and the potential future stock price of Kitty Hawk, different stock analysts made fancy looking forecast models and they all ended up the same earnings per share as each other (this was illustrated in Table 8.1 and the general idea of beginning with management forecasts is common). What they really did was make a seemingly elaborate financial projection and then plugged in revenues and margins that produced the earnings guidance provided by the company. There was no analysis of the potential volatility of freight prices; there was no analysis of the capital expenditures required to fund new planes and increase in revenues; there was no analysis of potential risks associated with grounding airlines and the contracts of Kitty Hawk were not specified.

This simple and typical approach to modeling demonstrates two big recurring problems with financial forecasts in corporate finance. First, the use of management estimates may be reasonable for a short period of time, but it is doubtful that management will provide an unbiased and reasoned perspective about the volatility in prices that really drive the revenues. Nor will management project potential problems with items such as extended maintenance periods for large planes that caused the first bankruptcy. Second, projection of revenue growth and application of gross margins does not tell you anything about the true economic value drivers of a business which are in this case are the prices required for earning a market return on the cost of converting aircraft.

A better way to evaluate the prospects of the company than projecting revenue growth and margins would be to develop an analysis that accounts for the economic structure of the industry and reflects the general notion that changes in the value of the existing portfolio are driven by economics of new assets. The idea that existing assets can somehow maintain their value when the value of new assets changes dramatically cannot happen without a very good fixed price contract. The pricing for a new assets depend on the capital expenditures paid for the new asset, the operating cost of the new asset and the acceptable return for the new asset. You can imagine a manager in the airfreight business making an investment decision from cost of new planes and the expected prices for airfreight. If the cost of a newly converted plane declines, the manager will make the investment with a lower price.

Changes in the dynamics of new investment is a big risk for capital intensive industries where assets have long lives and where the economics of new incremental investment can change rapidly. Examples of industries where changes in the pricing of new assets changed the value of existing assets include the shipping industry where an over-supply drove down prices to marginal cost; the real estate industry in cases where prices for sales and purchases of existing properties are driven by the cost of building new homes; and even the value of an MBA degree that depend on the cost of acquiring a new MBA degree from different universities.

For the Kitty Hawk case, the airfreight price driven by the marginal value of converting aircraft can be computed through evaluating the economics of an investment in newly converted aircraft. A risk faced by the company was that the cost per plane of newly converted aircraft would fall. This is compounded if demand drops and companies in the industry are willing to accept a lower return on the new assets. An economic analysis that quantifies these risks would use the cost of new aircraft, the IRR earned on the newly converted planes, the remaining lifetime of planes and various other parameters including the aircraft life and the tax rate. If it is assumed that industry demand declines, the IRR realized on newly converted aircraft will most probably fall and a low IRR should be applied. Given the competitive nature of the industry, assuming that a company such as Kitty

Hawk could purchase a plane, convert the aircraft and then earn a high IRR is not reasonable in a base case analysis. Table 8.6 illustrates the manner in which assumptions can be developed for the aircraft price driven by assumed value of newly converted aircraft, IRR that depends on the state of surplus capacity and other factors.

	Base Case	1998	1999	2000	2001	2002	2003	2004	2005
	Low Aircraft Added	1	1	1	1	1	1	1	1
Last Historic Period		FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
History		FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
Economics of Incremental Aircraft									
Economics of Added Planes									
Real Cost of New Planes									
Base Case Planes		6,175	6,175	6,175	6,175	6,175	6,175	6,175	6,175
Downside Case		6,175	5,146	4,678	4,068	4,068	4,068	4,068	4,068
Upside Case		6,175	6,484	6,808	7,148	7,506	7,881	8,275	8,689
Cost of New Planes		6,175	6,175	6,175	6,175	6,175	6,175	6,175	6,175
Inflation Rate for Incremental Aircraft		3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Inflation Index for Incremental Aircraft		1.06	1.09	1.13	1.16	1.19	1.23	1.27	1.30
Inflated Cost of Converted Aircraft		6,551	6,748	6,950	7,159	7,373	7,594	7,822	8,057
IRR on Marginal Aircraft		13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%
Plane Life		10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Incremental Tax Rate for Plane Economics		40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%
EBITDA per Single Plane from Function		1,415.14	1,457.60	1,501.32	1,546.36	1,592.75	1,640.54	1,689.75	1,740.45
Capacity Factor of converted aircraft		17.00%	17.00%	17.00%	17.00%	17.00%	17.00%	17.00%	17.00%
Hours of Operation per aircraft		1,489.20	1,489.20	1,489.20	1,489.20	1,489.20	1,489.20	1,489.20	1,489.20
Operating Cost of New Planes/Hour		1.50	1.55	1.59	1.64	1.69	1.74	1.79	1.85
EBITDA per hour for marginal converted planes		0.95	0.98	1.01	1.04	1.07	1.10	1.13	1.17
Marginal price per hour including administrative		2.60	2.67	2.75	2.84	2.92	3.01	3.10	3.19

Table 8.6 – Assumptions for Marginal Value

Valuation Issue 3 – Incorrectly Using Multiples and Relative Valuation to Assess Value and Credit Analysis

In assessing the value of a corporation it is reasonable to compare the valuation of the company in question (Kitty Hawk) with other companies that have similar risks, returns and growth prospects. Since risk, growth prospects and returns drive value, the company being valued should have similar valuation ratios such as the P/E ratio and the EV/EBITDA ratio to other companies in the sample. This method of valuation from comparing a company to other companies is known as relative valuation. The approach seems to be very attractive because it does not require speculative forecasts and estimation of growth and cost of capital parameters that are virtually impossible to estimate. This type of analysis requires finding similar companies and it requires understanding why one ratio may be different from another.

Table 8.7 shows an example of relative valuation of Kitty Hawk when the stock price was 16.75 in 1997. Kitty Hawk had a P/E ratio of 17.1x that was higher than Federal Express and the other companies in the sample (a very questionable sample), an EV/EBITDA ratio of 10.3x that was more than the expected lifetime of the reconfigured aircraft and a price to book ratio of 2.9 times that was much higher than the P/B ratio for Federal Express. As earnings were expected to grow quickly (by 15%) the high P/E seemed to be justified. At the end of 2007 the high price was 23.8 and the expected earnings was 1.45 implying a forward P/E ratio of 16.41x. The ultimate question is whether the expected growth could be sustained valuation is reasonable to apply to projected earnings after Kitty Hawk increases its fleet size and becomes primarily a freight carrier.

Valuation Table

Air Freight Company Comparables

Share prices as of close: 5/30/97

Ticker	Price	52 week:		Mkt. Cap.	YTD Perf.	EPS			P/B	P/E			P/EBITDA			Ent. Value/EBITDA			P/E vs. SP500		
		High	Low			FY96A	FY97E	FY98E		FY96A	FY97E	FY98E	FY96A	FY97E	FY98E	FY96A	FY97E	FY98E	FY96A	FY97E	FY98E
ATLS	\$ 28.75	\$ 59.75	\$ 19.88	\$ 645.4	-39.8%	\$ 1.88	\$ 2.10	\$ 2.50	3.0x	15.3x	13.7x	11.5x	1.5x	1.1x	0.9x	8.9x	6.4x	5.0x	0.74x	0.72x	0.64x
KTTY	16.75	17.25	8.00	175.1	67.5%	0.98	\$ 1.15	\$ 1.45	2.9x	17.1x	14.8x	11.5x	9.5x	5.2x	4.2x	10.3x	5.7x	4.6x	0.83x	0.76x	0.64x
FDX	52.38	57.88	36.25	5,970.8	17.7%	3.32	4.24	-	2.1x	15.8x	12.4x	NA	4.4x	4.0x	3.6x	5.5x	5.0x	4.4x	0.77x	0.65x	NA
ABF	38.25	38.38	19.50	803.3	63.6%	1.28	3.40	4.00	1.9x	29.9x	11.3x	9.6x	3.3x	2.6x	2.4x	4.8x	3.8x	3.5x	1.45x	0.59x	0.53x
Mean									2.5x	19.5x	13.0x	10.9x	4.7x	3.2x	2.8x	7.4x	5.2x	4.4x	0.9x	0.7x	0.6x
Adj. Mean									1.3x	16.4x	13.0x	5.8x	3.9x	3.3x	3.0x	7.2x	5.3x	4.5x	0.8x	0.7x	0.3x
High									3.0x	29.9x	14.6x	11.5x	9.5x	5.2x	4.2x	10.3x	6.4x	5.0x	1.5x	0.8x	0.6x
Low									1.9x	15.3x	11.3x	9.6x	1.5x	1.1x	0.9x	4.8x	3.8x	3.5x	0.7x	0.6x	0.5x

Table 8.7 – Relative Valuation of Kitty Hawk

In coming up with valuation multiples that that analysts may explain with some kind of sophisticated financial terminology, generally do not work through the fundamentals of why one company can have different multiples than others. To understand multiples, you can begin with a case where the company earns its cost of capital. Here the P/E ratio is simply one divided by the cost of capital. Once a range in cost of capital is established, the magnitude of the P/E ratio depends on the prospective earned return and the growth rate. If the earned return is high and the growth rate is also high, then a very high P/E ratio is logical. If however the return declines because of reduced aircraft value or surplus capacity, the P/E ratio is much lower. The real question in addressing the ratios is how much can the company earn above its cost of capital and how much growth is in the long-term and the short-term.

To evaluate the key drivers, a long-term simulation model has been developed of Kitty Hawk before the merger that is documented on the website www.edbodmer.com. This model demonstrates how the value of the company is affected by various different factors. The model shows which factors should have been focused on in the analysis rather than only margins and revenue growth. A

base case calibrates the analysis where the return relative to the cost of capital is constant and the returns on planes are 4% above the cost of capital. The model demonstrates that the value depends to a large extent on the long-run marginal cost driven by expected returns and the cost of newly refurbished aircraft. Figure 8.8 demonstrates that the most important variables in assessing the value of the airfreight business are the cost of newly converted aircraft and the marginal IRR earned on incremental aircraft.

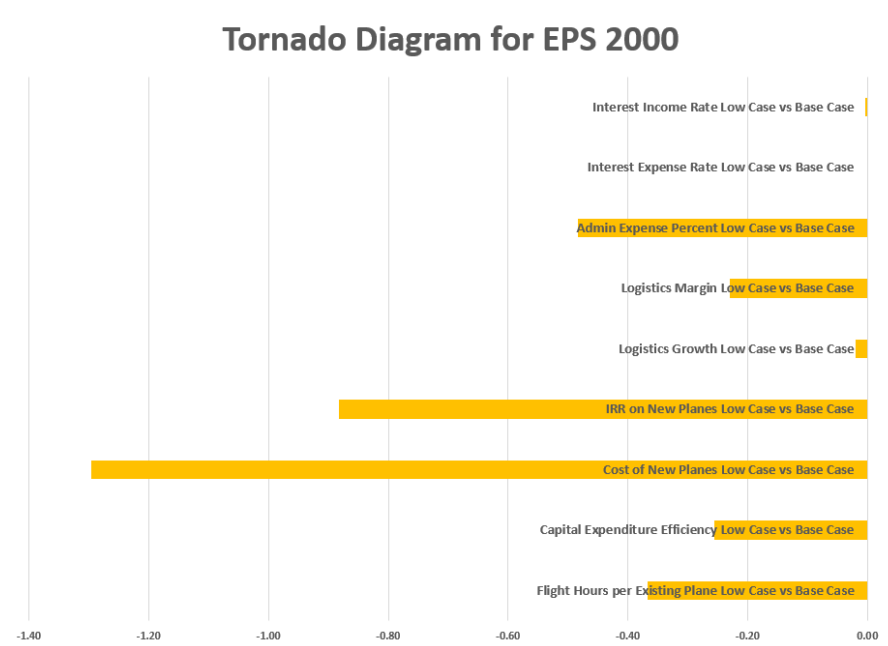


Figure 8.8 – Relative Valuation of Kitty Hawk

Valuation Issue 3 – Use of Debt/EBITDA and Similar Ratios in Credit Analysis with Potential Maintenance Expenditures

Credit analysis in project finance generally applies ratios related to the buffer between cash flow and debt service to assess whether cash flow is sufficient to repay debt. In terms of corporate finance, whether companies admit it or not, the real way loans are paid off in corporate finance is through re-financing and not by cash flow. If corporate loans were paid by cash flow, companies would be in decline as not making capital expenditures would not allow companies to grow EBITDA. The challenge in corporate credit analysis is to evaluate whether a company can re-finance its debt. In famous cases of bankruptcies it is when lenders lose confidence and stop lending new money when bankruptcies occur.

Financial ratios such as earnings coverage, debt to cash flow and debt to equity can be used to gauge whether lenders will have enough confidence in a corporation to continue lending money.

For Kitty Hawk, seemingly reasonable levels of key financial ratios -- debt to capital, debt to EBITDA and interest coverage -- were not useful in measuring credit risk. Financial analysts and credit rating agencies commonly use the ratios to measure the risk of defaults on loans. But the ratios were dangerous unless the philosophy underlying the numbers is understood. Instead of using financial ratios, a relatively simple financial model could have demonstrated that the probability of default from the loan issued in the merger had an unacceptable risk.

In the Kalitta merger, the debt to EBITDA ratio of 3.3x (see table 8.3) in simple terms implies that a bit more than three and a half years of EBITDA would be enough to pay off the total debt. This distorts the truth because the EBITDA must first pay the interest on the debt. When the interest is subtracted from EBITDA, the remaining cash flow would take more than 6 years to repay the debt. If the EBITDA fell in half, the cash would take 33 years to repay the debt. The debt to EBITDA also does not account maintain the existing assets. The loan to Kitty Hawk and Kalitta had a provision for minimum capital expenditures of \$65 million which compared to the EBITDA of about \$100 million. If the capital expenditures and the interest was subtracted from EBITDA, then there was no cash flow at all left over to repay the debt. In sum, Debt to EBITDA must be adjusted and understood before using some general benchmark that is applied to an industry by rating agencies.

Whereas the debt to EBITDA ratio measures the time to repay debt, the debt to capital ratio measures the value of collateral and the amount of money put up by investors that theoretically is paid after the debt. The debt to capital ratio of 67% shown in Table 8.2 seemed to imply that a lot of equity had been invested and investors had skin in the game. It also seemly suggested that the assets could decline in value by 33% and still pay off all of the debt. One of the problems with the debt to capital ratios after a merger is that asset value can be inflated by paying premiums for assets. For example, in the Kitty Hawk and Kalitta merger, if the shares that were issued to Kalitta were attributed a higher stock value, then the debt to capital ratio for the merger would be reduced. There would be no difference in cash paid and no difference in the allocation of shares. In fact the valuation of assets dramatically declined with the high supply of planes coming off passenger service.

The interest coverage or the debt service coverage ratio can be used to measure by how much cash flow can fall before debt cannot be repaid. For example if the cash flow before debt service is 150 and the debt service is 100, then the cash flow can fall by 50 or 33% (50/150) before debt cannot be repaid. The 33% can be computed by using the debt service coverage ratio of 1.5 which is

DSCR-1/DSCR or $(1.5-1.0)/1.5$. In the case of Kitty Hawk and Kalitta, the debt service coverage ratio without accounting for required capital expenditures was 2.04x. The difference between EBITDA and debt service was about \$53 million, implying that this amount could be paid.

Valuation Issue 4 – Not Using Reasonable Downside Cases in Assessing Credit Risk

Discussion of the different financial ratios seems to imply that a financial model could have been more effective to evaluate risks associated with repaying the debt. In making forecasts, the key factors that could cause EBITDA to increase or decrease should be understood and included in different cases. Revenues can change if prices increase or decrease, planes are in service or out of service and operating expenses change. For Kitty Hawk, a positive case would be that revenues increase because all planes are in service, prices net of fuel cost increases with inflation and operating expenses for maintenance of planes stabilize to historic percentages. An even more positive case would include synergies from more efficient management. For credit analysis, the most important cases are the downside analyses. It is very easy to make a very negative case when developing models. If extreme assumptions are made, the models simply suggest that loans should not be made and lenders could go without making any profit. Coming up with a realistic downside case that reflects realistic possible reductions in cash flow is perhaps the most important task of lenders.

A relatively simple downside case in the case of Kitty Hawk is simply that synergies are not realized and Kalitta does not solve its problems. This assumes that maintenance expenditures are reduced and airfreight prices do not increase. One of the most difficult parts of credit analysis for Kitty Hawk and Kalitta is determining the level of maintenance expenditures. According to the company, “expenditures for additions, improvements, aircraft modifications, engine overhauls and major maintenance costs are capitalized.” A key risks of Kitty Hawk was increased capital expenditures on old planes and the possibility of long down times during major overhauls. To illustrate problems in reporting, capital expenditures for the first three quarters of 1999 were \$72.6 million, which was far below the \$161.9 million for the first three quarters of 1998. But the capital expenditures of \$72.6 million in 1999 did not include purchase of new planes. Expenditures were primarily for: (i) modification of one Boeing 727 to cargo configuration; (ii) noise abatement modifications for six Boeing 727s; (iii) engine overhauls; (iv) heavy maintenance checks on three Boeing 727s and (v) purchase of rotatable aircraft parts. If these capital expenditures were continuing, the

expenditures would take up a lot of the EBITDA before interest expense or debt repayment could occur.

The summary of various downside cases are presented below in Figure 8.9. The top panel presents the new debt required over and above the debt issued for the merger that is required to meet obligations. This graph demonstrates that even in the positive case, some new debt is required. This suggests that a revolving line of credit would be necessary over and above the debt issued. In the upside case this debt could be financed with a revolver and quickly be repaid. The right hand panel shows that with this downside case, the loan should not have been made. The left hand panel illustrates that not only could the debt be repaid, but that an untenable amount of new financing would be required. The ultimate question in the case is how could banks have made such a large loan that required extremely positive assumptions to be repaid.

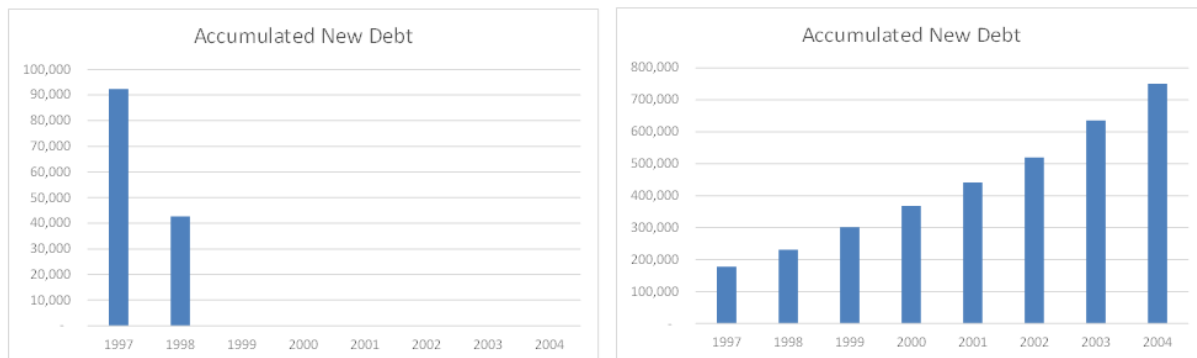


Figure 8.9 – New Debt Required in Positive Case and Downside Case

Table 8.8 presents financial ratios in the downside case. While the interest coverage remains above 1.0 and the Debt to EBITDA ratio simplistically suggests that the debt could be repaid in 10 to 11 years, the debt could not be re-financed. In summary, the case illustrates that financial analysts must look carefully evaluate demand volatility and potential changes in price and simple financial ratios are not adequate.

		1997	1998	1999	2000	2001	2002	2003	2004	2005
Debt to Capital	64.33%	71.26%	77.03%	83.23%	93.66%	106.53%	121.77%	140.89%	167.36%	207.08%
Debt to EBITDA		7.36	7.11	7.34	10.54	11.43	11.84	11.57	11.12	10.64
EBITDA Interest		1.61	1.66	1.59	1.14	1.04	1.02	1.03	1.07	1.12

Table 8.8 – Financial Ratios in Downside Case